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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 636,308	08 11 2000	Timothy A. Okel	1527A2	7905

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PPG INDUSTRIES INC  
INTELLECTUAL PROPERTY DEPT  
ONE PPG PLACE  
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EXAMINER

BLANTON, REBECCA A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 03 07 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/636,308

Applicant(s)

OKEL ET AL

Examiner

Rebecca A. Blanton

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

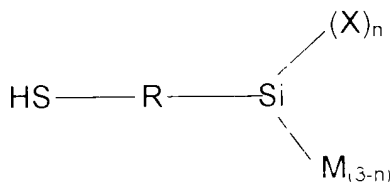
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8, 10-12, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner (U.S. 4,436,847) in view of Burns et al. (U.S. 6,051,672).

Referring to claim 1, Wagner discloses a reinforcing silica particle and a coupling solution used to treat the silica particle to improve the performance of the silica particles (column 1 lines 31-45). Wager teaches that the coupling mixture used to treat the silica particles comprises bis(alkoxysilylalkyl)polysulfides, haloalkylsilanes, and silane compounds, such as alkyl alkoxysilane (abstract). In column 6 lines 1-4, the reference teaches that the weight ratio of bis(alkoxysilylalkyl)polysulfide to alkoxysilane ranges between 0.15:1 to 15:1. However, Wagner does not disclose the pH at which the coupling solution is contacted with the silica particles. Burns et al. disclose a method for making hydrophobic silica particles in an aqueous solution (abstract). In column 4 lines 24-46, Burns et al. teach that the organosilica compounds used to treat the silica particles include the bis(alkoxysilylalkyl)polysulfide, bis(triethoxysilylpropyl)tetrasulfide, and the haloalkylsilane, trimethylchlorosilane. Burns et al. further disclose that the pH is

within the range of 0 to 3.5 (column 5 lines 20-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to look to prior art for a proper pH at which to contact the coupling solution, taught by Wagner, to the silica particle, and use a pH less than 3.5, in view of the teachings of Burns et al. Neither Wagner nor Burns et al. teach raising the pH from between 3 and 10 after the solution has been contacted with the particles. However, pH is a known result effective variable. If the pH is too low or too high the modified particles may become unstable and deteriorate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the pH to an appropriate range to ensure that the modified silica filler particles remained intact.

Referring to claims 2-3, in column 2 lines 1-39, Wagner discloses the use of a mercaptosilane represented by the formula:



Where X represents a halogen or  $-\text{OR}'$ ; M is a hydrogen,  $\text{C}_1\text{-C}_{10}$  alkyl, or halosubstituted  $\text{C}_1\text{-C}_{10}$  alkyl; R is a  $\text{C}_1\text{-C}_4$  alkylene,  $\text{R}'$  is selected from  $\text{C}_1\text{-C}_{10}$  alkyl or alkoxyalkyl containing 2-10 carbon atoms, and n is 1, 2, or 3.

Referring to claim 5, Wagner discloses that mercaptotrimetxysilane, and mercaptopropyltrimethoxysilane, as well as other mercaptosilanes, may be used as the coupling agent (column 2 lines 34-39).

Referring to claims 6-8, Wagner discloses that the alkoxysilane may be methyltrimethoxysilane or methyltriethoxysilane, in addition to other alkoxysilanes (column 2 lines 40-45).

Referring to claims 10-11, Wagner teaches, in column 6 lines 1-4, that the weight ratio of bis(alkoxysilylalkyl)polysulfide to alkoxysilane ranges between 0.15:1 to 15:1.

Referring to claim 12, Wagner teaches that both mercaptosilanes and bis(alkoxysilylalkyl)polysulfides may be used as the coupling agent (column 2 lines 1-58). However, Wagner does not teach the use of both the mercaptosilane and bis(alkoxysilylalkyl)polysulfide together. Burns et al. teach, in column 4 lines 24-46, that a mixture of two or more organosilica compounds, such as mercaptopropylmethyldimethoxysilane and bis(triethoxysilylpropyl)tetrasulfide, may be used in the coupling composition. Additionally, Burns et al. teach that the mercaptosilane or the bis(alkoxysilylalkyl)polysulfide may be used alone in the coupling composition (column 4 lines 24-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use both a mercaptosilane and a bis(alkoxysilylalkyl)polysulfide together in the coupling composition taught by Wagner, in view of the teachings of Burns et al. that using a mixture of the two compounds is equivalent to only using one of the compounds.

Referring to claims 14-15, Wagner teaches, in column 5 lines 7-18, that the bis(alkoxysilylalkyl)polysulfides that are useful in the invention include 3,3'-bis(trimethoxysilylpropyl)tetrasulfide and 3,3'-bis(triethoxysilylpropyl)tetrasulfide.

Referring to claims 16 and 18, Wagner teaches producing a modified silica filler product by contacting a silica particle with a coupling solution, as described above (column 1 lines 12-68).

Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner (U.S. 4,436,847) in view of Burns et al. (U.S. 6,051,672) as applied to claim 2 above, and further in view of Cruse et al. (WO 99/09036).

Referring to claim 4, Wagner discloses a process for forming modified silica particles by contacting silica particles with a coupling solution that contains mercaptosilanes, as described above. Burns et al. also disclose a process for forming modified silica particles, described above. However, neither reference discloses the use of blocked mercaptosilanes in the coupling solution. Cruse et al. teach the use of blocked mercaptosilanes as coupling agents (abstract). On page 1 lines 1-20, Cruse et al. disclose that the mercaptosilanes are blocked until they are needed for use to reduce their reactivity to prevent premature curing. When the mercaptosilanes are needed, Cruse et al. teach that they are unblocked using a deblocking agent (page 3 lines 6-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use blocked mercaptosilanes in the coupling solution taught by Wagner, to ensure that they do not prematurely react and cause untimely curing.

Referring to claim 17, Wagner teaches producing a modified silica filler product by contacting a silica particle with a coupling solution (column 1 lines 12-68).

Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Wagner (U.S. 4,436,847) in view of Burns et al. (U.S. 6,051,672) as applied to claims 6 and 12 above, and further in view of Lightsey et al. (U.S. 5,985,953).

Referring to claims 9 and 13, Wagner discloses a method for forming modified silica filler by contacting silica particles with a coupling solution, as described above. Additionally, Wagner discloses the use of chloromethyl trimethoxysilane as a halosubstituted alkyl silane (column 5 lines 19-36). Burns et al. also describes forming modified silica filler particles by contacting them with a coupling solution, explained above. However, neither reference teaches using precipitated silica particles to form the modified silica. Lightsey et al. teach forming a modified silica by reacting precipitated silica particles with an organosilica coupling agent in an aqueous solution (abstract). The coupling agents taught by Lightsey et al. include bis(triethoxythiopropyl)tetrasulfide and mercaptopropyltriethoxysilane (column 7 lines 33-50). The reference further teaches that alkoxysilanes may be used in the coupling solution (column 6 lines 54-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use precipitated silica in the method of forming modified silica by contacting silica particles with a coupling solution, as taught by Wagner, in view of the teaching of Lightsey et al. that precipitated silica may be used to form modified silica particles when contacted with a coupling solution.

Referring to claim 13, neither Wagner nor Burns et al. disclose a weight ratio of bis(alkoxysilylalkyl)polysulfide to mercaptosilane. However, the weight ratio is a known result effective variable. If the ratio is too high, only the bis(alkoxysilylalkyl)polysulfide may bond to the silica particles, however, if the weight ratio is too low, only the

mercaptosilane may bond to the silica particles. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimum weight ratio for bonding of the bis(alkoxysilylalkyl)polysulfides and the mercaptosilanes to the silica particles.

### ***Double Patenting***

Claims 1-18 of this application conflict with claims 1-18 of Application No. 09/636312. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The examiner notes the different wording between claim 1 and claim 1 of Application No. 09/636312. Claim 1 has "chemically treated filler" in line 9, while claim 1 of Application No. 09/636312 has "chemically modified filler" in line 9. However, chemically modified and treated have the same meaning, therefore, the claims have the same limitations.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca A. Blanton whose telephone number is 703-605-4295. The examiner can normally be reached on M - F (7:30am - 3:30pm).



Art Unit: 1762

mercaptosilane may bond to the silica particles. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimum weight ratio for bonding of the bis(alkoxysilylalkyl)polysulfides and the mercaptosilanes to the silica particles.

### ***Double Patenting***

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-18 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-18 of copending Application No. 09/636312. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The examiner notes the different wording between claim 1 and claim 1 of Application No. 09/636312. Claim 1 has "chemically treated filler" in line 9, while claim 1 of Application No. 09/636312 has "chemically modified filler" in line 9. However, chemically modified and treated have the same meaning, therefore, the claims have the same limitations.

### ***Conclusion***

Application/Control Number: 09/636.308  
Art Unit: 1762


Page 8

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca A. Blanton whose telephone number is 703-605-4295. The examiner can normally be reached on M - F (7:30am - 3:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

rab *RA13*  
March 5, 2002

  
SHRIVE P. BECK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700